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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/598,147	08/18/2006	Myung Ahn Ok	20345/0205330-US0	1621
7278 7590 02/25/2008 DARBY & DARBY P.C. P.O. BOX 770 Church Street Station New York, NY 10008-0770				
EXAMINER CHOI, LING SIU				
ART UNIT		PAPER NUMBER		
1796				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/598,147

Applicant(s)

OK ET AL.

Examiner

Ling-Siu Choi

Art Unit

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SI/309)
Paper No(s)/Mail Date 08/18/2006
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This Office Action is in response to the Preliminary Amendment filed 08/18/2006. Claims 1-11 are now pending, which are drawn to a method to prepare an ethylene polymerization catalyst.

Claim Analysis

2. Summary of Claim 1:

A method of preparing an ethylene polymerization catalyst , comprising:		
A	a1	reacting <u>magnesium halide</u> with alcohol in a hydrocarbon solvent
	a2	reacting the resulting product solution with <u>dialkylmagnesium</u>
	a3	reacting the resulting product from the step (a2) with alkyl halide or silane halide, to give a magnesium complex
B	reacting the magnesium complex with a titanium compound, to give a magnesium-titanium complex	
C	reacting the magnesium-titanium complex with an electron donor	

Claim Rejection -35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which

said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwa et al. (US 4,071,674) in view of Kioka et al. (US 4,330,649).

Kashiwa et al. disclose a process to prepare a catalyst for olefin polymerization, the process comprising the contact of (A) a transition metal catalyst component prepared by reacting (1) a titanium compound selected from TiX_4 and $Ti(OR)_{4-n}X_n$ [$n =$ zero or a positive number of less than 4] with (2) the product formed by a reaction between (a) a magnesium dihalide solid carrier comprising an adduct formed by reacting a magnesium dihalide with an aliphatic or aromatic C_{1-12} alcohol in an inert organic medium and (b) an organometallic compound of the formula $R_2Mg [R_2MgX]$ with $l = 0$] with (B) an organometallic compound catalyst component selected from $R'_{3-m}AlX_m$, $R'_{3-n}Al(OR)_n$, and $RAI(OR)X$ [col. 4, lines 43-46; Example 1- hexane (col. 8, line 14); claim 1].

The difference between the present claims and the disclosure of Kashiwa et al. is the requirement of a step of halogenating the contact product of magnesium dihalide, alcohol, and dialkylmagnesium in the present claims.

Kioka et al. disclose a process to prepare a catalyst, comprising the contact of (A) a solid titanium catalyst component containing magnesium, titanium, halogen and an electron donor, wherein the catalyst component (A) is the product of (a) a magnesium compound in the liquid state having no reducing ability with (b) a halogen-containing titanium compound in the liquid state in the presence of an electron donor having no

active hydrogen, and (B) an organometallic compound of a metal selected from the group consisting of metals of Groups I to III of the periodic table (claim 1). Kioka et al. further disclose that the magnesium compound having no reducing ability is obtained "by dissolving or suspending a magnesium compound containing alkyl, alkoxy, aryloxy,etc. in a hydrocarbon solvent in which the aforesaid alcohol.....is dissolved, and converting it into a halogen-containing magnesium compound having no reducing ability while halogenating it with a halogenating agent such as a hydrogen halide, a silicon halide and halogen" (col. 6, lines 47-56). Kioko et al. furthermore disclose that "[t]he use of the magnesium having no reducing ability (a) is essential in the present invention, but this does not preclude the use of a magnesium compound having reducing ability in combination. In many cases, it is not desirable to use a large amount of the compound having reducing ability together" for "the titanium catalyst component having superior properties" (col. 3, lines 54-56; col. 7, lines 9-14). A conclusion can be drawn that halogenation is needed to reduce the amount of the magnesium compound having reducing ability. Thus, It would have been obvious to one of ordinary skill in the art at the time the invention was made to halogenate the contact product of magnesium dihalide, alcohol, and dialkylmagesium in the disclosure of Kashiwa et al. and thereby obtain the present invention.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ling-Siu Choi whose telephone number is 571-272-1098. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on 571-272-1114. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Ling-Siu Choi/

Primary Examiner, Art Unit 1796

February 15, 2008

